



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/536,871

02/16/2006

Rolf Brisberger

HM-631PCT

4414

40570 7590 05/24/2010
FRIEDRICH KUEFFNER
317 MADISON AVENUE, SUITE 910
NEW YORK, NY 10017

EXAMINER

TUROCZY, DAVID P

ART UNIT

PAPER NUMBER

1715

MAIL DATE

DELIVERY MODE

05/24/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,871	Applicant(s) BRISBERGER ET AL.	
	Examiner DAVID TUROCY	Art Unit 1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/21/2010 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. In view of the certified translation of DE 102 55 995.3, the WO 680 reference is no longer prior art. However, upon further consideration, a new ground(s) of rejection is made in view of US Patent 6194022 by Schunk.

1. but they are not persuasive because they are directed to newly amended claim limitations that were not present at the time of the final rejection.

In response to the added limitations, the examiner notes JP 251 explicitly discloses the sensor is completely away from the inductor as claimed (see figures). The mere fact that the inductor is connected to the sensor does not remedy the fact that the claims fail to exclude such a situation.

As for the limitation requiring that the sensor is closer to the metal strip than the induction coils, the examiner notes that this limitation, in view of the teachings of JP 251, would have been obvious to one of ordinary skill in the art. JP 251 discloses the sensor is preferably coplanar to the electromagnetic edge; however the examiner notes that one of ordinary skill in the art would expect successful results in providing a sensor that is not coplanar. Specifically, the sensor measures the distance between the sensor and the metal strip and conveys the data to the controller to determine if the electromagnets should apply a magnetic force to provide the strip with the desired

Art Unit: 1715

properties (location, vibration, etc.) One of ordinary skill in the art would expect predictable results in modification of the position of the sensor. Specifically, the sensor measures distance between the sensor and the steel strip, the logic controller will adjust the electromagnets accordingly and therefore the distance between the sensor and the steel strips does not have to equal the distance between the electromagnets and the steel strip. The mere fact that the sensor is placed closer to the steel strip does not provide basis for patentability because one of ordinary skill in the art would expect predictable results in the placement of the sensor at a location closer to the steel strip and thereafter providing the controller with the desired distance measurements that will provide the appropriate information to effectively control the steel strip. In other words, one of ordinary skill in the art would expect that the steel strip will be predictably controlled in the same manner because the simple modification of sensor placement and concurrent adjustment of the controller to provide the information to the controller of the placement of the sensor is well within the skill of one of ordinary skill in the art. By moving the sensor to a place closer to the strip, one of ordinary skill in the art would understand that the sensor measurements will only be displaced by the amount of adjustment, i.e. the distance between the sensor and the steel strip is merely a function of the position of the sensor within the guide channel.

Alternatively, the examiner cited here JP 06108220 by Nakamoto which explicitly discloses the sensor is closer to the steel strip than the electromagnet (see figure 1) and therefore modification of the prior art to provide a sensor that is closer to the steel strip than the closest point of the electromagnet would have been obvious to one of ordinary

Art Unit: 1715

skill in the art because such a modification would have led to predictable results of successful control.

All other arguments not specifically addressed above are considered not commensurate in scope with the claims or unsupported by any factual evidence and are thus deemed moot.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6194022 by Schunk in view of JP 10298727, hereafter JP 727 and JP 10-110251, hereafter JP 251 and further in view of the Admitted state of the art OR Hitz (True Position Measurement with Eddy Current Technology).

Schunk discloses a device for hot dip coating a metal strand (1), especially a steel strip, in which the metal strand (5) is passed vertically through a coating tank (1) that contains the molten coating metal (2) and through a guide channel (4) upstream of the coating tank, with at least two inductors (7,6) installed on both sides of the metal strand (5) in the area of the guide channel (4) for generating an electromagnetic field in order to keep the coating metal (2) in the coating tank (1) and with at least one sensor for determining the position of the metal strand (1) in the area of the guide channel (4). (entire reference, figures).

Art Unit: 1715

Schunk discloses determining the position of the steel strip in the guide channel, but fails to disclose the sensor is at the same height as the inductors; however, JP 727 discloses a method for controlling the vibration discloses position detection sensors installed within the height of the electromagnets (see figure, abstract). Therefore, taking the references collectively, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Schunk to include the position sensors which are installed, as viewed in the direction of conveyance of the metal strand within the height of the inductors and between the inductors and the metal strand with a reasonable expectation of success

As for the requirement of the sensor being spaced from the inductors, this is clearly taught by JP 251, which discloses multiple arrangements for sensors for determining placement of the vertical steel strip includes among other things between the inductors and the metal strip and spaced apart from the inductors (see figures 1-5). Therefore, taking the references for all their teachings, it would have been obvious to one of ordinary skill in the art to have modified WO 680 in view of JP 727 to include sensors between the metal strip and the inductor, wherein the sensors are spaced apart from the inductors with a reasonable expectation of providing predictable results of control and measurement of the displacement of the metal strip in the guide channel, JP 251 explicitly discloses the sensor is completely away from the inductor as claimed (see figures). The mere fact that the inductor is connected to the sensor does not remedy the fact that the claims fail to exclude such a situation.

Art Unit: 1715

As for the limitation requiring that the sensor is closer to the metal strip than the closest point of the electromagnets, the examiner notes that this limitation, in view of the teachings of JP 251, would have been obvious to one of ordinary skill in the art. JP 251 discloses the sensor is preferably coplanar to the electromagnetic edge; however the examiner notes that one of ordinary skill in the art would expect successful results in providing a sensor that is not coplanar (i.e. closer to the strip). Specifically, the sensor measures the distance between the sensor and the metal strip and conveys the data to the controller to determine if the electromagnets should apply a magnetic force to provide the strip with the desired properties (location, vibration, etc.) One of ordinary skill in the art would expect predictable results in modification of the position of the sensor. Specifically, the sensor measures distance between the sensor and the steel strip, the logic controller will adjust the electromagnets accordingly and therefore the distance between the sensor and the steel strips does not have to equal the distance between the electromagnets and the steel strip. The mere fact that the sensor is placed closer to the steel strip does not provide basis for patentability because one of ordinary skill in the art would expect predictable results in the placement of the sensor at a location closer to the steel strip and thereafter providing the controller with the desired distance measurements that will provide the appropriate information to effectively control the steel strip. In other words, one of ordinary skill in the art would expect that the steel strip will be predictably controlled in the same manner because the simple modification of sensor placement and concurrent adjustment of the controller to provide the information to the controller of the placement of the sensor is well within the skill of one of ordinary skill in the art. By

Art Unit: 1715

moving the sensor to a place closer to the strip, one of ordinary skill in the art would understand that the sensor measurements will only be displaced by the amount of adjustment, i.e. the distance between the sensor and the steel strip is merely a function of the position of the sensor within the guide channel.

As for the requirement that the sensor is a coil. Schunk in view of JP 727 and JP 251 fails to disclose the position determination using coils, however, ASA discloses that coils uses to determine the position of the metal strip is known and suitable in the art (see page 5 of original specification) and alternatively, Hitz discloses using a coil to accurately determine the distance from a substrate (figure 1 and reading of entire reference) therefore taking the references collectively, it would have been obvious to have used coils as the position sensor with a reasonable expectation of success.

Claim 2: JP 727 and JP 251 disclose, at figures, the position sensors and the inductors are arranged symmetrically with respect to the center plane of the guide channel.

Claims 7-9: JP 727 and JP 251 discloses including a measuring device and a subtractor in the system (see 6, 7 in figures and 0024-0026). Additionally, the examiner notes the claims are directed to the device and the remaining claims are directed to intended use of the structure and It is well settled that the intended use of a claimed apparatus is not germane to the issue of the patentability of the claimed structure. If the prior art structure is capable of performing the claimed use then it meets the claim. *In re Casey*, 152 USPQ 235, 238 (CCPA 1967); *In re Otto*, 136 USPQ 459 (CCPA 1963).

Art Unit: 1715

Claim 10: It would have been obvious to use several pairs of coils, as viewed in the direction of conveyance of the metal strand, within the height of the inductors and between the inductors and the metal strand to increase the accuracy of the position measurement.

Claim 11: Schunck in view of JP 727 and JP 251 discloses all that is taught above; additionally JP 727 and JP 251 discloses computing the deviation is measured from the desired value to result in an indicator of the position of the metal strand (0025-0026).

4. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck, in view of JP 727 and JP 251 and further in view of US Patent 4912407, hereafter US 407.

Schunck in view of JP 727 and JP 251 discloses all that is taught above, including inductive sensors for determining the position, however, the references fail to disclose the coils as wire winding, one or more windings, copper coils, or the shape of the coils. However, US 407 discloses a known and suitable method for forming coils for determining position with respect to metal, discloses a displacement sensor includes a copper coil, without a core, with more than 1 circular winding (column 8), therefore taking the references collectively, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Schunck in view of 727 and JP 251 to use the sensors as taught by US 407 with a reasonable expectation of success

Art Unit: 1715

because such sensors are taught as known and suitable inductive sensors for molten metal and position detection.

5. Claims 1, 2, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck in view of JP 10298727, hereafter JP 727 and JP 10-110251, hereafter JP 251 in view of ASA or Hitz and further in view of JP 06108220 by Kazunari, hereafter JP 220.

Schunck, JP 727 and JP 251 in view of ASA or Hitz discloses all that is taught above and while the examiner maintains the position of obviousness regarding the placement of the sensor, the examiner cites here JP 220, which explicitly discloses the sensor is closer to the steel strip than the electromagnet (see figure 1) and therefore modification of the prior art to provide a sensor that is closer to the steel strip than the closest point of the electromagnet would have been obvious to one of ordinary skill in the art because such a modification would have led to predictable results of successful control.

6. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck, JP 727, JP 251, JP 220 in view of ASA or Hitz and JP 220 as applied above and further in view of US Patent 4912407, hereafter US 407.

Schunck in view of JP 727, JP 251, and JP 220 in view of ASA or Hitz discloses all that is taught above, including inductive sensors for determining the position, however, the references fail to disclose the coils as wire winding, one or more windings,

Art Unit: 1715

copper coils, or the shape of the coils. However, US 407 discloses a known and suitable method for forming coils for determining position with respect to metal, discloses a displacement sensor includes a copper coil, without a core, with more than 1 circular winding (column 8), therefore taking the references collectively, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Schunck in view of JP 727, JP 251, and JP 220 in view of ASA or Hitz to use the sensors as taught by US 407 with a reasonable expectation of success because such sensors are taught as known and suitable inductive sensors for molten metal and position detection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Us Patent 6194022 discloses attaching the sensors to computer, capable of acting as a measuring and subtractor as required by the claims (see column 3, lines 5-10).WO 01/71051 discloses multiple pairs of coils between the inductor and the metal strip.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID TUROCY whose telephone number is (571)272-2940. The examiner can normally be reached on Tuesday, Thursday, and Friday from 7 a.m. - 6 p.m., Monday and Wednesday 5-8 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1715

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David Turocy/
Primary Examiner, Art Unit 1792